Model water-in-oil emulsions were prepared with different asphaltenes subfractions. The influence of these fractions on the stability of petroleum model emulsions and on the efficiency of demulsifiers were evaluated by Bottle test and measurements of the interfacial tension. Details are discussed in the Article The Influence of Asphaltenes Subfractions on the Stability of Crude oil Model Emulsions by Siller O. Honse, Claudia R. E. Mansur and Elizabete F. Lucas on page 2204.
**Communication**

2133 **Isolation and Amino Acid Sequencing by MALDI-TOF-MS/MS of a Novel Antimicrobial Anionic Peptide from the Skin Secretion of Osteocephalus taurinus (Anura, Hylidae)**

Túlio O. G. Costa, Richardon A. Almeida, Jorge T. Melo, Hector H. F. Koolen, Felipe M. A. da Silva, José Roberto S. A. Leite, Maura V. Prates, Carlos Bloch Jr. and Angelo C. Pinto

**Graphical Abstract**

From the crude skin secretion of the *Osteocephalus taurinus* frog a novel peptide named otacidin was isolated. The de novo sequencing of this peptide was made by MALDI-TOF-MS/MS analysis, which revealed to be an anionic peptide, being only the second report of this type of peptide from an amphibian. Otacidin was tested against some bacteria presenting slight antimicrobial activity.

**Reviews**

2137 **Metal-Catalyzed Asymmetric Aldol Reactions**

Luiz C. Dias, Emílio C. de Lucca Jr., Marco A. B. Ferreira and Ellen C. Polo

**Graphical Abstract**

This review focuses on the development of metal-mediated chiral catalysts in Mukaiyama-type aldol reactions, reductive aldol reactions, direct aldol reactions and the application of these catalysts in the total synthesis of complex molecules.


Ernesto C. Zuleta, Libia Baena, Luis A. Rios and Jorge A. Calderón

**Graphical Abstract**

During the oxidation process of biodiesel, methyl esters of fatty acids form a radical which quickly binds with oxygen in the air forming volatile products such as aldehydes, ketones, lactones, and formic, acetic, propionic and caproic acids. Products formed during the autoxidation of biodiesel can increase their corrosivity and stimulate the degradation of materials.

**Articles**

2176 **Adapting the Reducing Sugars Method with Dinitrosalicylic Acid to Microtiter Plates and Microwave Heating**

Anamaria Negrulescu, Viorica Patrulea, Manuela M. Minea, Cosmin Ionascu, Beatrice A. Vlad-Oros and Vasile Ostafe

**Graphical Abstract**

For the assay of sugars with DNS reagent, using microtiter plates, the heating step can be performed in a water bath accommodated in a microwave oven.

2183 **Structure-Activity Relationship Study of Rutaecarpine Analogous Active Against Central Nervous System Cancer**

Gabriel R. Martins, Hamilton B. Napolitano, Lilian T. F. M. Camargo and Ademir J. Camargo

**Graphical Abstract**

The partial charges derived from electrostatic potential on atoms C₄ and H₂ and the bond orders between atoms C₁ and C₅, C₂ and C₆ and C₁₀ and N₁₅ explain correctly the biological activity of a set of 21 rutaecarpine derivatives synthesized and tested against central nervous system cancer.
2191 A Fragment-Based Approach for the in Silico Prediction of Blood-Brain Barrier Permeation
Tiago L. Moda, Alexandre E. Carrara and Adriano D. Andricopulo

Graphical Abstract
Quantitative structure-property relationship (QSPR) studies were conducted in this work for the development of useful in silico models for the prediction of blood-brain barrier permeation, using a large data set containing 255 structurally diverse compounds.

2197 A Novel Approach for the Synthesis of 5-Substituted-1H-tetrazoles
Batool Akhlaghinia and Soodabeh Rezazadeh

Graphical Abstract
A series of 5-substituted-1H-tetrazoles (RCN4H) have been synthesized by cycloaddition reaction of different aryl and alkyl nitriles with sodium azide in DMSO using CuSO4·5H2O as catalyst. The catalyst used is readily available and environmentally friendly.

2204 The Influence of Asphaltenes Subfractions on the Stability of Crude Oil Model Emulsions
Siller O. Honse, Claudia R. E. Mansur and Elizabete F. Lucas

Graphical Abstract
Micrographies (inverted optical microscope) of water-in-oil model emulsions prepared with different asphaltenes fraction (Fraction C5 and subfraction C8-C9) extract from a crude oil asphaltic residue.

2211 The Use of Cloud Point Extraction and Hydride Generation for Improving the Sb and Se Limits of Detection in ICP OES
Fernanda dos Santos Depoi and Dirce Pozebon

Graphical Abstract
Hydride generation (HG) and inductively coupled plasma optical emission spectrometry (ICP OES) were investigated and employed for Se and Sb determination. Cloud point extraction was used for analyte preconcentration. The HG performance was compared with that of pneumatic nebulization.

2222 Development of an Amperometric Enzyme Electrode based on Poly(o-Phenylenediamine) for the Determination of Total Cholesterol in Serum
Derya Koyuncu Zeybek, Bülent Zeybek, Nuran Özçięcek Pekmeç, Şale Pekyardımcı and Esma Kılıç

Graphical Abstract
In enzymatic reaction, cholest-4-en-3-one and hydrogen peroxide form. The oxidation current of hydrogen peroxide can be detected at applied potential and the current is proportional to the concentration of cholesterol.
2232  Extraction and on-Fiber Derivatization of Chlorophenols in Leather by Internally Cooled Solid Phase Microextraction  
Cristine D. de Souza Silveira, Josias Merib, Edmar Martendal and Eduardo Carasek

**Graphical Abstract**  
The study proposes a new analytical procedure based on an internally cooled solid phase microextraction technique (CF-SPME) combined with on-fiber derivatization and gas chromatography-selected ion monitoring-mass spectrometry.

2237  Photophysics and Spectroscopic Properties of Zinc Phthalocyanine Revisited using Quantum Chemistry  

**Graphical Abstract**  
The present paper reports an accurate theoretical description of absorption, fluorescence and phosphorescence spectra of zinc phthalocyanine using TD-DFT.

2248  Application of β-Cyclodextrin/MnFe$_2$O$_4$ Magnetic Nanoparticles as a Catalyst for Fast Chemiluminescence Determination of Glutathione in Human Blood using Luminol-Diperiodatoargentate(III) System  
Behzad Rezaei, Ali A. Enasfi, Fariba Haghighatnia and Saeed E. Aalaye

**Graphical Abstract**  
The chemiluminescence (CL) of the reaction, luminol-diperiodatoargentate(III) system, with catalytic effect of β-CD/MnFe$_2$O$_4$ magnetic nanoparticles is successfully applied for rapid and sensitive determination of glutathione in human blood samples.

2258  Rainwater Major and Trace Element Contents in Southeastern Brazil: an Assessment of a Sugar Cane Region in Dry and Wet Period  
Patrícia L. Oliveira, Bernardino R. Figueiredo and Arnaldo A. Cardoso

**Graphical Abstract**  
The chemical and mineralogical composition of the rainwater in Araraquara City, Brazil, is influenced by diversity sources of atmospheric pollutants such as (a) pre-harvest burning of sugar cane crops, (b) re-suspended dust derived from soils and (c) vehicle emissions.

2266  Synthesis and Phytotoxicity of 4,5 Functionalized Tetrahydrofuran-2-ones  
Gabriela C. Resende, Elson S. Alvarenga, Juan C. G. Galindo and Francisco A. Macias

**Graphical Abstract**  
We report a versatile synthesis of fourteen γ-lactones structurally related, which had their phytotoxic activity evaluated in vitro by the influence on the growth of wheat (*Triticum aestivum*) coleoptiles. 5-Isopropoxyfuran-2(5H)-one presented 76% inhibition of the coleoptiles at 1000 mmol L$^{-1}$ compared to the control.